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Push to make Massachusetts a leader in biofuels

By Keith Howard, Daily News correspondent

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Could Massachusetts become the nation's 21st century version of Texas when it comes to energy production?

It could if legislative leaders, venture capitalists and researchers have their way. But instead of black crude, the state's energy wealth may be hidden in wood chips, cranberry bogs and yard waste.

The state's efforts are part of a national competition to lead the country in the biofuel market. Among the competitors are New York, California and, of course, Texas, along with current leaders Minnesota and Iowa.

According to the state's Executive Office of Energy and Environmental Affairs, several local businesses are preparing to compete in this arena. Three biodiesel refineries are in the planning stages in Pittsfield, Greenfield, and Quincy. The refinery in Greenfield expects to produce about 5 million gallons of biodiesel a year, primarily from waste oil.

But there's more to the push for a state biofuel industry than simple economic competition. Massachusetts consumes about 4.5 billion gallons of petroleum per year, costing roughly \$10 billion. That's the third highest energy price in the country, behind only Hawaii and Washington, D.C., according to the U.S. Department of Energy.

Petroleum fuels are the largest single source of energy expenditures in the state, accounting for roughly half of total annual residential and commercial energy spending. Over one-third of homes in the state (36 percent) use home heating oil, well beyond the national average of 8 percent, according to the same report.

"In a world where Massachusetts is 100 percent dependent on petroleum, they (fuel companies) can in effect hold state consumers hostage to high oil prices. In essence, they can charge whatever they want," said Brook Coleman, spokesman for the Northeast Biofuels Collaborative.

"If your oil company says, 'You're going to pay \$3.25 for oil,' what are you going to do? Are you going to buy a wood-burning stove? You're stuck," said Coleman.

Massachusetts may seem an unlikely producer of biofuels. It doesn't grow large crops of corn, sugar or oil seed used to make ethanol. But the U.S. Department of Energy says those crops comprise 37 percent of biomass used in the country while forest residues, primary and secondary mill waste along with urban wood-wastes from paper mills, saw cutting and cardboard account for 39 percent.

Scientists say wood chips, algae and cranberry biomass are readily available resources for biofuels in the state. According to Coleman, there is a tremendous amount of waste from the leaves and stems of cranberries along with acres of unused cropland.

Magdalena Bezanilla, a cell biologist at the University of Massachusetts, just received a \$625,000 grant to make a biofuel a reality. Her research uses moss to search for genes that might make other plants such as switch grass grow better.

"Five to six years from now we might be able to discover the genes that alter genetic makeup that (makes biofuel feedstock) grow faster and bigger," said Bezanilla.

The advantage to crops such as switch grass is that less energy is required to break down the plants into ethanol.

"Right now corn seems to be the most high profile, but it actually takes a lot of energy input to convert corn into ethanol. [That's] not the best solution. Cellulosic ethanol doesn't require as much energy input to get out a good amount of ethanol," Bezanilla said.

Companies aren't waiting for a research breakthrough. Berkshire Biodiesel has plans to set up a \$50 million biodiesel production facility in Pittsfield and Dalton, which is expected to produce 50 million gallons of biodiesel a year from virgin feedstocks such as soy, according to Robert Keough, spokesman for the state environment office.

"We certainly think it will be a significant boon to the agricultural industry here. We think this will bear additional crops that can be raised for fields, but also that agricultural wood will be used for biofuels as well," said Keough.

The state's three top politicians are taking steps to nurture these industries by supporting mandates that diesel and home fuel providers use alternative energy sources in their blends.

Gov. Deval Patrick, Senate President Therese Murray and House Speaker Salvatore DiMasi support a bill requiring the use of biodiesel in all blends of transportation and heating fuels, starting at 2 percent biodiesel in 2010 and increasing to 5 percent in 2013.

If that legislation passes, Massachusetts would be the first state to require a minimum amount of bio-alternatives in all fuels. The bill would also provide a gas tax exemption for cellulosic ethanol.

According to sponsors of the bill, cellulosic ethanol could create 3,000 new jobs in Massachusetts and pour \$320 million into the economy. BioEnergy International, Verenium, Mascoma, Agrivida, SunEthanol, and GreenFuel Technologies are some of the leading companies in the state racing to bring this next generation fuel source to the market.

The headquarters for World Energy, one of the largest biodiesel distributors in the country, can be found in Chelsea. Mass Biofuel, another major biodiesel supplier, is located in Dedham.

(Keith Howard is part of the Boston University State House Program.)